The impact of contractual and relational aspects on the relationship effectiveness between LSPs and their clients and the influence of relationship type

Rinaldo Schipper

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Ing. Rinaldo Schipper   83 85 24 447

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Thesis mentor: Drs. Dianne Hofenk

Co-reader: Prof. Dr. JanJaap Semeijn

Abstract

Global supply chains are a source of competitive advantage and collaboration has been referred to as the driving force behind effective supply chain management (SCM). Due to the trend toward corporate downsizing of organizations, and the need to focus on core, value-adding operations, the number of organizations which have outsourced their logistics to a logistics service provider (LSP) has increased. Supply chain collaboration seems to have great potential, but further investigation is needed to understand its practical value.

There have been many studies so far investigating success factors for 3PL partnerships. A long-term contract is one of these success factors, because the greatest risk in an outsourcing contract is non-performance. Usually there are contracts in place to ensure that performance remains within acceptable limits. Contracting clients is normally a large, multi-year arrangement and switching providers can be very costly for both parties.

Outsourcing has become popular in management literature and practice, but very little research has examined managerial activities that might influence the performance of logistics outsourcing relationships. Further research is needed to develop a deeper understanding of the behavioral complexities that emerge through the interaction between the buyer and provider of logistics services. The main contribution of this research is adding knowledge regarding contracts in relationships. The principle objective and contribution of the research is empirically testing the relationship between contractual and relational aspects on the one hand and relationship effectiveness of 3PL user-provider relationships on the other. This will help evolving the 3PL industry into a mature one. Therefore, the following research question is formulated:

What is the impact of contractual and relational aspects on the effectiveness of relationships between LSPs and their clients and is this influenced by relationship type?

Managers can use the information of this thesis to better understand the nature of inter-organizational relationships and to better manage these, because successful collaborative client-LSP relationships are claimed to yield significant benefits. The results of this research will provide managers with guidelines as to which contractual and relational elements are necessary to focus on in various relationship types.

A conceptual model was built based on existing literature. It was hypothesized that contract formality, contract negotiations thoroughness, trust and commitment would increase the relationship effectiveness. It was also hypothesized that these relations were influenced by relationship type.

The data were gathered by means of a cross-sectional questionnaire that took place in the 3PL industry. The resources for this thesis were constrained, therefore only a sample of the population was researched. Data analysis took place with multiple regression analysis in SPSS 16.0.

In this research 240 questionnaires were sent out and 128 complete responses were returned from 7 participating LSPs and their clients. This is a response rate of 53.3% overall. Respondents are working for LSPs and clients and have various functions within their organization. All functions are on middle or higher management levels. The final model explains 48.9% of the variance of the effectiveness of relationships between LSPs and clients. Contract formality and trust are both positively related to relationship effectiveness. Negotiations thoroughness is negatively related to relationship effectiveness, which is not expected a priori. Commitment is not significantly influencing relationship effectiveness. Relationship type only moderates the relation between trust and relationship effectiveness, all other relations were not moderated. In additional analyses differences between LSPs and clients are analyzed. Only the means score on commitment is significantly different for LSPs and clients. Further it can be concluded that the final model also fits for LSPs only. In that case, it explains 48.9% of the variance of relationship effectiveness. For clients only however, the model should be adjusted. Contract negotiations is not significant and therefore left out and then the model explains 57.7% of the variance in relationship effectiveness.

Main contributions of this research are that it is empirically proven that both contractual aspects and soft relationship aspects influence relationship effectiveness. Trust and contract formality are both equally important and both constructs have a rather important impact on relationship effectiveness. Also the negative effect of contract negotiations on relationship effectiveness is valuable information. These insights allow managers to develop and manage relationships with other organizations in a more effective way. It is also important to recognize and understand any differences as well similarities between LSPs and clients.

The research has three important limitations, that all (might) have had severe consequences for the results. The first limitation is the availability of data. Seven LSPs participated, which is a relatively small number. The second limitation is the use of convenient sampling, which should preferably not be used in explanatory research. The third limitation is the cross-sectional design, which is not suited to determine whether and/or how the contractual aspects change throughout the relationship.

Suggestions for further research are provided, in the first place to address the limitations of this research. Further research should include more LSPs, adopt a probability sampling technique and use a longitudinal design. Other directions for future research include the development of an extended model, the development of metrics to measure the relationship value and an alternative approach to construct measurement.

Preface

In September 2007 I started with finalizing my study, namely the process of writing a thesis. Afterwards I can say that this was the most challenging part of the last six years of my study. It was interesting to learn more about supply chain management in general and contracts in particular, but more important, it was a way to learn more about myself.

I would like to thank my mentor, Drs. Dianne Hofenk for her time and her always useful and great feedback. Without her I was only half way. Also I would like to thank my co-reader Prof. Dr. JanJaap Semeijn. I am also grateful to all the practitioners in the 3PL industry, who helped me with the data collection for this research.

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Rinaldo Schipper

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1 Introduction

Global supply chains are a source of competitive advantage (Manuj and Mentzer, 2008), and supply chain collaboration is a valuable approach for reaching world class operational performance (Vereecke and Muylle, 2006). Internal excellence is not enough anymore, there is also a need for external excellence in the whole supply chain (Sandberg, 2007). Outsourcing has attracted growing interest in recent years as managers consider whether it is in their best interest to perform activities in-house or let them perform by a logistics service provider (LSP) (Bolumole et al., 2007). LSPs are companies, which perform logistics services on behalf of others, either completely or only in part (Delfmann et al., 2002; Krauth, 2005). Examples of such logistics services are inventory management, warehousing, procurement, transportation, systems administration, information systems, materials sub-assembly, contract manufacturing and import and export assistance.

According to Bagchi and Virum (1996) a logistics alliance means a long-term formal or informal relationship between a client and a LSP to render all or a considerable number of logistics activities for the client. The client and the LSP see themselves as long-term partners in these arrangements. It is widely believed that collaboration among supply chain members will lead to competitive advantage for all (Mentzer et al., 2000). Collaboration has been referred to as the driving force behind effective SCM. However, there is also fairly widespread belief that few firms have truly capitalized on the potential of collaboration (Barratt, 2003; Crum and Palmatier, 2004). Supply chain collaboration seems to have great potential, but further investigation is needed to understand its practical value (Min et al., 2005). There have been many studies so far investigating success factors for 3PL partnerships and long-term contracts is one of them (Van Laarhoven et al., 2000; Frankel et al., 1996). It is important to find the optimal contract, which will be accepted by both the client and the LSP and at the same time will induce the LSP to truthfully reveal his capability (Lim, 2000).

There is a continuing wave of consolidation within the 3PL industry. This has resulted in the emergence of large companies that have the capabilities to offer sophisticated logistics solutions on a continental or even global scale. Such LSPs strive to assume a more strategic role within the supply chain of clients, expanding their scale and scope of operations (Selviaridis en Spring, 2007). Contracting clients is normally a large, multi-year arrangement and switching providers can be very costly for both parties. Therefore contracting agreements are perceived to be central to the establishment of effective logistics outsourcing relationships

(Boyson et al., 1999). According to Webb and Laborde (2005), the basis for a successful outsourcing client/LSP relationship begins with the formulation of a contract.

According to Marasco (2007), the research interest in and the importance of 3PL has led to many publications. Much has been written about relationships in logistics, primarily between the shipper and the receiver of the goods, not least within the marketing research area as well as within the logistics research area. However, the relations in the common triad setup, between the shipper and the carrier and between the receiver and the carrier, have rarely been covered (Stefansson, 2005). Today, 3PL research regularly appears in the logistics and supply chain management literature and the scope of this research is much broader than the earliest efforts. While "descriptive and demographic" continues to be an important 3PL research theme (see, for example, Lieb and Bentz, 2005; Sohail et al., 2004), other 3PL research streams are emerging (Knemeyer and Murphy, 2005). Most of the early papers on 3PL focus on reasons for outsourcing logistics activities and what to expect from it, whereas recently, additional attention has been given to key success factors and the role of 3PL providers in supply chain management (Van Laarhoven et al., 2000). Outsourcing has become popular in management literature and practice (Bolumole et al., 2007), but very little research has examined managerial activities that might influence the performance of logistics outsourcing relationships (Knemeyer and Murphy, 2004).

Further research within 3PL is needed to develop a deeper understanding of the behavioural complexities that emerge through the interaction between the buyer and provider of logistics services (Marasco, 2007). Empirical research should be directed towards contractual practices and further empirical evidence is needed about the type of contracts, charging mechanisms and fee structures applied, the level of detail in respect of service specification and the extent of inclusion of penalty/incentive clauses (Selviaridis en Spring, 2007). The main obstacle faced by researchers in industrial organizations is the lack of available data on contracts and activities of firms (Ciccotello and Hornyak, 2000). Hence, a logical starting point for research into 3PL contracts would be to examine various contracts in which the same service provider is engaged concurrently (Sankaran et al., 2002). Nearly all of the existing 3PL research has focused on either 3PL users or 3PL providers. The simultaneous consideration of user and provider perspectives is important because these two groups can exhibit key perceptual differences (Knemeyer en Murphy, 2005).

The fact that supply chain collaboration has obtained increasing popularity (Simatupang and Sridharan, 2005) and the paucity of empirical studies supporting the claims made for performance improvement through collaborative relationships (Hines et al., 2002; Vereecke and Muylle, 2006), combined with the evolving 3PL industry and the claims that contracts play an important role in relationships has led to this study, which will add new knowledge to existing literature and will help researchers and practitioners understand collaboration in the 3PL industry to help evolving 3PL into a mature industry. The principal objective and contribution of the research is empirically testing the relationship between contractual and relational aspects and relationship effectiveness of 3PL user-provider relationships. Therefore, the following research question is formulated:

What is the impact of contractual and relational aspects on the effectiveness of relationships between LSPs and their clients and is this influenced by relationship type?

A conceptual framework has been developed based on a literature review of the logistics service provision theory, relationship marketing theory and industry experiences of managers working in the 3PL industry. To test this framework a research with a questionnaire has been developed. The research includes multiple LSPs with numerous clients. In this questionnaire, both the perspective of the LSP and the perspective of the client have been included.

The contribution of this research will be a deeper understanding of the role contractual and relational aspects play in the inter-organizational relationships in the 3PL industry. This is critical for practitioners to better manage their relationships (Golicic and Mentzer, 2006), because successful collaborative client-LSP relationships are claimed to yield significant benefits, such as inventory reduction, better quality, improved delivery, reduced costs, shorter lead-times, and higher flexibility (Vereecke and Muylle, 2006; Min et al., 2005). The findings of this study will provide supply chain practitioners with a clearer understanding of the connection between their efforts toward relational activities and the performance of their 3PL relationships. It is recognized that contractual elements are vital in 3PL arrangements. Therefore, the results of this research will provide practitioners with guidelines as to which contractual elements are necessary to focus on in various relationship types.

The remainder of the thesis is organized as follows. The next section provides a literature review and a conceptual model to test the hypotheses is presented. Thereafter, the method used to empirically test the model is explained and the variables in the model are operationalized. Next, the results of the empirical research are presented. Finally, conclusions, implication for management and theory, limitations and suggestions for further research are provided.

2 Literature review

2.1 Supply Chain Management (SCM)

The traditional form of business exchange has been based on transactional relations focusing on the single product transaction with limited information sharing (Jagdev and Thoben, 2001). At the end of the 1980s and 1990s, a significant change in trading relations took place. The previous arm's-length relations were replaced by durable arm's-length relations and strategic partnerships characterized by a high degree of information exchange. The idea was to create more streamlined business processes through an open exchange of information, which, in turn, would lead to large cost reductions. In accordance with the great focus on information-sharing collaboration, the concept of supply chain management was introduced in the 1980s (Skjøtt-Larsen et al., 2003). SCM addresses modern business issues, such as long-term strategic alliances, cross-organizational logistics management, joint planning and control of inventory and information sharing (Chan and Qi, 2003). These issues are forcing companies to place a premium upon collaboration (Simatupang and Sridharan, 2005). Antony (2000), Stank and House (2001), and Simatupang and Sridharan (2005) define collaboration as two or more companies sharing the responsibility of exchanging common planning, management, execution and performance measurement information to effectively meet end customer needs with lower costs. Contrary to arm's-length relationships, collaborative relations involve higher levels of communication, relation-specific investments, interdependence and commitment (Lehtonen, 2006). In order to ensure effective collaboration, the chain members are encouraged to clearly define mutual objectives and associated performance measures and link their performance systems with decision synchronization, information sharing and incentive alignment (Simatupang and Sridharan, 2005). Collaboration between companies participating in supply chain setups is generally believed to increase efficiency and decrease costs, but also to improve customer service (Min et al., 2005; Sandberg, 2007). Companies create increased value by collaborating on knowledge, resources, promotions, and placed orders, among others, which is equally valuable (Stefansson, 2005). Therefore, companies need to have partnerships, which are tailored business relationships based on common interests, mutual trust and help, leadership, openness, shared risk and shared rewards, that yield a competitive advantage, resulting in business performance greater than would be achieved by the firms individually (Mentzer et al., 2000; Lambert et al., 1996).

Due to the trend toward corporate downsizing and diversification, and the need to focus on core, value-adding operations, the number of organizations which have outsourced their

logistics has increased, because they see the effectiveness of logistics as a competitive tool (Bolumole, 2003).

2.2   Outsourcing in Supply Chain Management

In the beginning of the 1990s, outsourcing of logistics activities was quite a new phenomenon and at the end of the 1990s, logistics still did not seem to be on the agenda of top management. Nowadays, outsourcing all or part of the logistics function in a supply chain to logistics service providers has become the norm across the industry (Van Laarhoven et al., 2000). The outsourcing services market has exploded in recent years as more and more companies recognize the benefits of outsourcing to firms that can meet their requirements (Webb and Laborde, 2005). As logistics becomes more sophisticated and the gap between what companies want to accomplish and what they can do in-house continues to grow, the rationale for outsourcing to third parties increases. Logistics outsourcing represents a specifically defined, often contractual relationship based on third-parties meeting specified performance criteria set by client organizations (Bolumole, 2003). The most commonly outsourced functions are those that are non-core, routine-based, or asset based (Boyson et al., 1999).

The decision to outsource (or not) logistics activities depends on a multitude of variables, which refer to both internal and external considerations. Internal considerations are product-related (e.g. special handling needs), process-related (e.g. cycle times, resources and capabilities) and network-related (e.g. countries served), but also difficulties with managing logistics in-house and the special expertise of the provider (Sankaran et al., 2002) support the decision to outsource. External considerations are changes in the business environment, like increased competition, pressure for cost reduction, the need for strategic flexibility, the focus on core competencies, the improvement of service quality and the resulting need to restructure supply chains (Qureshi et al., 2007; Selviaridis and Spring, 2007).

Although benefits are alliance-specific, the following are perceived to be the most common:

- Reduced cost through specialization
- Improved synergistic performance
- Increased information to support joint planning
- Enhanced customer service
- Reduced risk and uncertainty
- Shared creativity
- Competitive advantage (Frankel et al., 1996)

Third party logistics (3PL) providers can offer logistics expertise as well as cost advantages to individual organizations, because they provide an opportunity for organizations not to tie-up unnecessary capital in costly logistics-related equipment such as warehouses, trucks and sorting equipment (Bolumole, 2003). 3PL providers can also contribute to improved customer satisfaction and provide access to international distribution networks (Bask, 2001).

2.3 Third party logistics (3PL)

One of the major challenges in understanding 3PL lies in its definition. Terms such as logistics outsourcing, logistics alliances, third party logistics, contract logistics and contract distribution have been used interchangeably to describe the organizational practice of contracting-out part of or all logistics activities that were previously performed in-house. Different definitions tend to emphasize different aspects of outsourcing arrangements such as the service offerings, nature and duration of relationships, performance outcomes, extent of third party responsibility for the logistics processes and position/role in the supply chain (Selviaridis and Spring, 2007).

Van Laarhoven et al. (2000) define 3PL as activities carried out by a LSP on behalf of a shipper and consisting of at least management and execution of transportation and warehousing. In addition other activities can be included. According to Bagchi and Virum (1996), a logistics alliance means: a long-term formal or informal relationship between a shipper and a LSP to render all or a considerable number of logistics activities for the shipper. The shipper and the LSP see themselves as long-term partners in these arrangements.

A sort of compromise between the alternative broader and narrower views of 3PL can be found in the definition offered by Bask (2001), who describes 3PL as relationships between interfaces in the supply chain and 3PL providers, where logistics services are offered, from basic to customized ones, in a shorter or longer-term relationship, with the aim of effectiveness and efficiency.

The roles of LSPs vary according to the level of outsourcing, from only transportation services to complete integrated-logistics, value-added services and global management of the customers' logistical setups (Stefansson, 2005). In the literature there are many authors describing the roles LSPs should encompass. The functions LSPs typically perform are all kinds of transportation, warehousing, inventory management, order processing, value added logistics, tracking and tracing and return logistics (Bhatnagar and Viswanathan, 2000; Van Laarhoven, 2000; Sink et al., 1997). There are also less conventional activities, such as those

related to custom clearance and billing or acting as a call-centre for the shipper (Krauth et al., 2005).

2.4   Relationships

As is the case with 3PL, relationship marketing is a relatively new concept in the sense that it did not become prominent in the literature until the 1980s and 1990s (Rao and Perry, 2002). The marketing literature has frequently examined the phenomenon of ongoing relationships and the efficiency of these relationships through a relationship marketing perspective (Sin et al., 2005; Min et al., 2005). Relationship marketing is characterized by reciprocal, interdependent and long-term relationships. While various definitions could be applied, this manuscript will utilize Morgan and Hunt's (1994) widely cited definition of relationship marketing: marketing activities directed at establishing, developing, and maintaining successful relational exchanges.

Organizations have long recognized that better relationships lead to better performance. Collaborative practices have been argued to be vital to the creation of firm capabilities and/or performance outcomes (Min et al., 2005). There have been many studies so far investigating success factors for 3PL partnerships. According to Qureshi et al. (2007) and Frankel et al. (1996), commitment/trust, communication, top management support, a long term contract, willingness to be flexible, clear and consistent goals and coordination are the enablers of a successful 3PL relationship.

In this study the dependent variable will be relationship effectiveness. The reasons for choosing this psychosocial outcome are that past studies of effective working relationships have also focused on subjective outcomes (Stoel, 2002; Massey and Dawes, 2006; Chimhanzi and Morgan, 2005; Kahn et al., 2004) and objective measures of effectiveness (e.g. sales volume) may not accurately reflect the quality of a relationship due to confounding factors such as long sales cycles (Smith and Barclay, 1997).

In this study, perceived relationship effectiveness is drawn from Van de Ven (1976) and Rückert and Walker (1987) and this construct is defined in terms of how worthwhile, equitable, productive and satisfying the client perceives his/her working relationship with the LSP and vice versa.

2.5   Contracts

The greatest risk in an outsourcing contract is non-performance (Domberger, 1998). Usually there are contractual instruments in place to ensure that performance remains within acceptable limits (Jané and De Ochoa, 2006). Parties who have not done business before may

have the need to enter into more detailed contracts than those who have had extensive prior dealings (Ciccotello and Hornyak, 2000). Another reason for drawing up contracts is that parties want to use contracts to transmit information to each other. Also the fact that contracts are customary, in other words, the contract symbolizes the existence of the business deal, is a reason for having a contract (Roxenhall and Ghauri, 2003).

A logistics contract can be defined as a commercial contract under which one party, known as the LSP, provides services of a logistical nature to a customer/client in exchange for payment of an economic amount (Jané and De Ochoa, 2006). According to Handfield and Bechtel (2002) contracts are legal instruments that explicitly define the terms of inter-organizational agreements.

Apart from the reason for drawing up contracts, organizations use contracts in three different ways. Firstly, they use them as proof of what was agreed upon in case of a conflict. Secondly, the contract has the function of controlling individuals, within their own organization, within the organization of the other party and potentially individuals in competitors' organizations. Thirdly, the contract is used as an interpretation tool to interpret those aspects of the agreement that are not obvious (Roxenhall and Ghauri, 2003).

Many times outsourcing relationships do not succeed because the expectations of the client and the abilities of the LSP are not realistically established at the onset of the relationship. Fully defining the expectations and abilities of both parties and thereby laying to rest idealistic or misunderstood expectations is critical to the success of a client/LSP relationship. The design and implementation of 3PL relations appears to be problematic. Often-cited difficulties include lack of understanding of clients supply chain needs, lack of adequate expertise in specific products and markets, unrealistic customer expectations, inadequate description of services and service levels, lack of logistics cost awareness by the client, lack of 3PL innovation (Wilding and Juriado, 2004) and the reduction of flexibility and increase in contracting costs (Ciccotello and Hornyak, 2000).

2.6   Development of hypotheses

2.6.1   Contract formality

Relationships between exchange partners can be stabilized through either formal or informal mechanisms. Formal mechanisms clearly specify the required degree of co-operation, conformance and inter-organizational integration through the use of a written contract. Informal mechanisms consider the historical and social context of a relationship as well as

specifically acknowledging that the performance and enforcement of obligations are an outcome of mutual interest between parties (Frankel et al., 1996). While the majority of authors seems to agree that the existence of formal contracts is necessary for the management and control of 3PL relations, it is also argued that detailed contracts can be perceived as an indication of lack of trust (Lambert et al., 1999). Poppo and Zenger (2002) state, that in the presence of relational governance, formal contracts are at best an unnecessary expense and at worst counter-productive. Frankel et al. (1996) concluded that firms do not believe formal written contracts are an integral or necessary component to achieve an effective alliance relationship. However, according to Poppo and Zenger (2002), well-specified contracts narrow the domain and severity of risk to which an exchange is exposed. Bucklin and Sengupta (1993) discussed the benefit of a written contract in terms of creating an opportunity to design desired patterns of partner behaviour. Dobler et al. (1990) suggested that long-term written agreements provide the required degree of stability. According to Qureshi et al. (2007), a precise long-term contract, with clearly defined expectations, responsibilities and performance parameters, forms the basis for an enduring relationship. An interesting study finding from Min et al. (2005) is that formalization is necessary for successful collaboration execution. Atkin and Rinehart (2006) concluded after their study that higher levels of contract formality actually increased the satisfaction in the relationship. In the literature there are two opposing views about the role of formal contractual agreements, but the majority seems to agree that contract formality leads to more successful relationships. This leads to the following hypothesis:

H1: Contract formality will have a positive effect on relationship effectiveness.

2.6.2   Contract negotiations
The foundations for relationships are often built during the initial negotiation process. The process of negotiating can lead to satisfaction or dissatisfaction with the relationship on the part of the supplier and the customer (Atkin and Rinehart, 2006). Also Boyson et al. (1999) mention, that the preparation of contracts is important to the success of 3PL relationships.

Negotiation is a management process involving the preparation for bargaining, the interaction of two or more parties in a bargaining situation, and the resolution or outcome of this interaction (Rinehart et al., 1988).

Much has been written about the negotiation process. Sink and Langley (1997) propose a sequential, managerial framework for the effective acquisition of logistics services. The

framework is a sequence of the following five steps: identify need to outsource logistics, develop feasible alternatives, evaluate and select suppliers, implement service and conduct ongoing service assessment. Such a model can guide the purchasing process. Sankaran et al. (2002) have given a conceptualization of 3PL contracts, which can be grouped into four major categories, namely the prelude, the physical actualisation of the contract, the multi-lateral management of the contract and the context embedding the contract. Roxenhall and Ghauri (2003) focus more on the negotiations itself. They have analyzed contract negotiations on the basis of five phases, namely the offer, the discussion, the adjustment, the preparation and the final negotiation phase. Professional experience shows us that when negotiating a contract, the parties pay little attention to its content aside from those matters related to the technical, economic and operative aspects of the contract. However, the 3PL provider that wishes to conclude a contract with a person seeking its services has to be an expert with respect to the needs of its customer, in order to design the logistical operation in such a way that it satisfies the customer's requirements in terms of service, cost and quality (Jané and De Ochoa, 2006). Otherwise a new tender is arranged, which results quite often in a new partner (Van Laarhoven et al., 2000). The problem is that by shifting partners too often the learning curve has to be restored and all knowledge and competencies developed in the existing relationship might disappear (Halldorsson and Skjøtt-Larssen, 2004). During the negotiation process both parties will establish the most important foundation for what will be concluded when the contract is finalised (Jané and De Ochoa, 2006). This is also in line with the findings of Sankaran et al. (2002). Their findings suggest that the thoroughness of the contract logistics service provider during contract negotiations is a major determinant of contract success. This offers H2:

H2: The thoroughness of contract negotiations will have a positive effect on relationship effectiveness.

2.6.3 Trust and commitment

No partnership can exist without trust and commitment. True partners do not have to constantly worry about being replaced and although most executives involved in partnerships find it difficult to precisely define trust, they all intuitively know when it exists (Lambert et al., 1996). The constructs trust and commitment have been widely applied in inter-organizational relationship research (Golicic, 2007).

Trust is a frequently mentioned construct in many models of long-term business relationships and appears to be a cornerstone of successful logistics outsourcing relationships (Knemeyer and Murphy, 2005). Trust can be defined as reliance on, and confidence in, another party and represents a key element in relational exchanges. Trust continues to be the bedrock of many successful 3PL arrangements (Mayer et al., 1995; Shaw, 1997).

Commitment has recently emerged in the literature as a critically important element for effective relationships. Organizational researchers have identified various types of commitment. Of these, affective commitment and calculative commitment appear most frequently and also seem to be the most relevant for inter-organizational relationships. An affectively committed party desires to continue its relationship, because it likes the partner and enjoys the partnership. Calculative commitment results from a calculation of costs and benefits, including an assessment of the investments made in the relationship and the availability of alternatives to replace the other party (Geyskens et al., 1996). Various models provide a more holistic insight of commitment by treating it as a single construct, which manifests a want for prolonging a relationship (Gounaris, 2005). Therefore commitment can be defined as the willingness to exert effort to continue the relationship (Morgan and Hunt, 1994). According to various authors commitment is vital for successful relationships (Gounaris, 2005; Morgan and Hunt, 1994).

This leads to the following hypotheses:

H3: Trust will have a positive effect on relationship effectiveness
H4: Commitment will have a positive effect on relationship effectiveness

2.6.4   Type of relationship

Relationships between organizations can range from arm's length relationships to vertical integration of the two organizations. As the relationship literature developed, researchers agreed that many different types of relationships were possible in a supply chain. In order to develop a greater understanding of behavioural variations in these relationships, concepts surrounding the strength of the relationship began to be explored (Golicic, 2007; Lambert et al., 1996). Bowersox (1990) places the relationship between buyer and seller of logistics functions on a continuous scale going from single transactions to integrated service agreements. Apte and Vepsalainen (1993) developed a service matrix framework for analyzing relationships and services at a general level. According to the service matrix, three different types of efficient service relationships can be distinguished: routine service, standard

service and customized service. Halldorsson and Skjøtt-Larsen (2004) developed a model which is used to propose different types of 3PL relationships. At the lowest level of collaboration we find shippers who buy transport and logistics services on the "spot market". At the next level the LSPs offer a broad range of standard services from which the customer can select a package of modules. At the third level the shipper and the LSP jointly develop a logistics solution that is unique for the particular 3PL relationship. The fourth stage is in-house logistics solutions. It is important to note that the framework does not depict a successive progress from one stage to another. It illustrates that the various forms of logistics solutions are contingent upon the nature of competence and degree of asset specificity. Golicic and Mentzer (2006) define relationship type as the group or class of relationships that share common governance characteristics and are operationalized through variations under the primary categories of arms length, cooperative and integrated relationships.

The relationship type influences the relations between the independent variables and relationship effectiveness. In arms length relationships parties are more focused on the resolution of possible future conflicts than in integrated relationships. Therefore, an arms length relationship leads to a rigorous contract with details on all issues, and is primarily used as a means of control. Formal contracts help ensure that the early, more vulnerable stages of exchange are successful, this is when parties have not done business before (Ciccotello and Hornyak, 2000; Poppo and Zenger, 2002). On the other hand, in integrated relationships, the parties are more concerned with their future behavior towards each other and the contract is used to agree on terms and conditions. Contracts are short and not specific or there is no written contract at all (Lambert et al., 1996; Roxenhall and Ghauri, 2004). Samee and Walters (2003) argue that doing business without a contract is generally not problematic for companies that often know their clients well.

The relationships between parties influence the process of negotiations (Hauglund, 1999). Close relationships can result in shorter negotiations. Sellers do not have to sell their services and products to the same extent that they must when parties know little about each other. Likewise, discussions involving prices, delivery conditions and quality issues are probably less extensive when relationships are close (Roxenhall and Ghauri, 2004).

No partnership can exist without trust and commitment (Lambert et al., 1996). However, in closer relationships parties develop higher levels of trust and commitment and there is implicit total trust and there is commitment to long-term success of the relationship (Golicic and Mentzer, 2006). At the lowest level, trust is limited to the belief that each partner will perform

honestly and ethically and commitment of each party is limited to a specific transaction or project. (Lambert et al., 1996). This leads to the following hypotheses:

H5a: The type of relationship moderates the relationship between contract formality and relationship effectiveness

H5b: The type of relationship moderates the relationship between negotiation thoroughness and relationship effectiveness

H5c: The type of relationship moderates the relationship between trust and relationship effectiveness

H5d: The type of relationship moderates the relationship between commitment and relationship effectiveness

2.7   The conceptual model

At the end of the literature review the conceptual model is presented. The dependent variable is relationship effectiveness. The four independent variables are:

- Contract formality
- Negotiation thoroughness
- Trust
- Commitment

The moderating variable is relationship type according to the model of Golicic and Mentzer (2006). The conceptual model is visualised in figure 1.
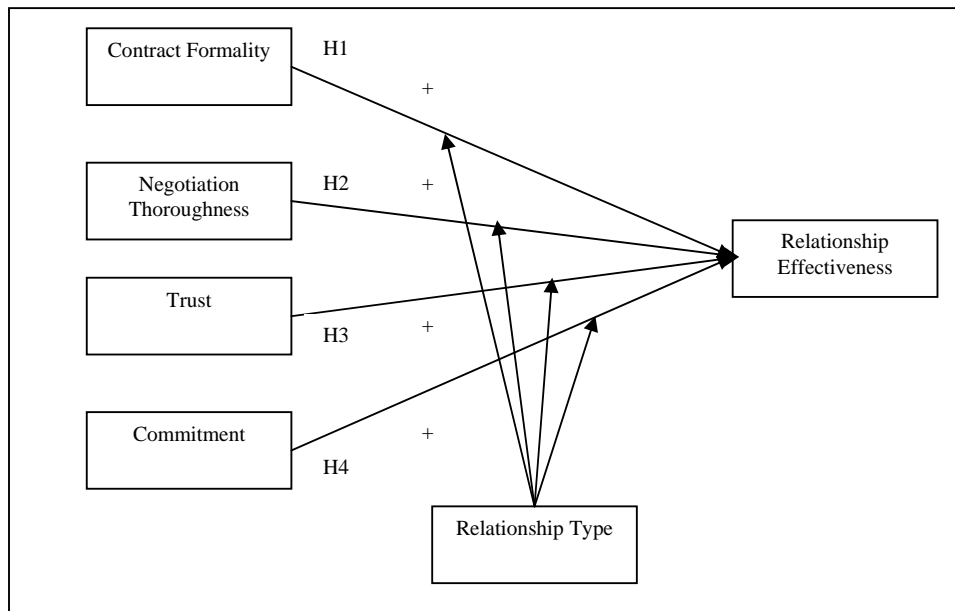

Figure 1   Conceptual model

3 Methodology

3.1 Research strategy

According to Yin (1994) there are two important factors that determine which research strategy is appropriate. The first one is the research aim, which can be derived from the research question. The research question in this thesis is: *'what is the impact of contractual and relational aspects on the relationship effectiveness between a LSP and its clients and is this influenced by the relationship type?'* Much is already known about the subject. Therefore, it is possible to formulate specific hypotheses. The aim of this research is to empirically test these hypotheses and generalize the outcomes to a broader context. In this case a broad, quantitative, empirical research, such as a questionnaire, is appropriate. In this context a large number is understood to be at least between 100 to 150 units. Fewer units will result in the quantitative analysis becoming less reliable (Verschuren and Doorewaard 1999; Yin, 1994).

The second factor to determine the appropriate research is the complexity of the object of study. This complexity can be caused by four factors (Yin, 1994):

1. The difficulty of studying the object outside its natural setting. In this research it would be very difficult and costly to set up a situation in which the object could be measured outside its natural setting. All variables in the conceptual model would have to be controllable, which is almost impossible. Therefore, an experiment is not preferable.

2. The lack of understanding the phenomenon. If much is already known about the phenomenon, a questionnaire might be a good research strategy. If little is known, gaining insight in the phenomenon is necessary and therefore a more interactive strategy, such as case research, might be appropriate. In this thesis, the phenomenon 'relationship effectiveness' is central and it is already extensively researched. Therefore, it is possible to develop specific hypotheses. The data to test these hypotheses can be easily collected by means of a questionnaire.

3. The difficulty of quantifying the phenomenon of interest. The variables in this research are relatively easy to quantify, because no extensive interaction is needed to gather the appropriate information. Therefore, data collection is relatively time extensive and a lot of respondents can be included in this research.

4. The relative emphasis on contemporary as opposed to historical events. This thesis focuses on the contemporary mechanism through which contractual aspects affect relationship effectiveness. Contemporary resources for researching this are available, so there is no need for historic research.

In conclusion, the aim of testing hypotheses about the phenomenon 'relationship effectiveness' could be best accomplished through means of a questionnaire. A sample of all clients cooperating with LSPs (the population) was used to test the hypotheses. Because the material was gathered at only one moment in time and from only one group, one can speak of a cross-sectional questionnaire (Verschuren en Doorewaard, 1999).

3.2 Context

The data collection took place in the 3PL industry. The continuing wave of consolidation within the 3PL industry has resulted in the emergence of large companies that have the capabilities to offer sophisticated logistics solutions on a continental or even global scale. Such LSPs strive to assume a more strategic role within the supply chain of clients, expanding their scale and scope of operations (Selviaridis and Spring, 2007). In this study seven LSPs are participating. They vary from large global LSPs which offer a one stop shopping to smaller companies focusing on just one or two activities. Given increased client's focus on supply chain profitability, there is a potential for LSPs to become more closely linked through cross-functional information and process integration. Therefore, all participating LSPs are interested in the outcomes of this study and how to use the results in order to overcome existing challenges and make long-term, value-adding relationships the rule, rather than the exception.

3.3 Data collection

3.3.1 Unit of analysis and population

The unit of analysis in this study is the relationship between a LSP and its client. The population consists of all LSPs operating on a global scale. No remarkable differences are expected between the participating LSPs and the total population, because the LSPs participating in this study are part of global organizations. The resources for this thesis were constrained, therefore only a sample of the population was researched.

3.3.2 Sample

According to Malhotra and Birks (2003) the most important decision about the choice of sampling technique is whether to use non-probability or probability sampling. Probability samples generate estimates which are statistically projectable to the population. Here convenience sampling is used. A sample has been drawn consisting of 10 LSPs which are all located in the Netherlands. As a result of the recent consolidation in the 3PL industry, all LSPs are part of globally operating organizations. The first reason for selecting these 10 LSPs

is that every year "Logistiek Nederland" creates a list containing the largest LSPs operating in the Netherlands. All 10 LSPs were on the list of 2008. A second reason is that there are existing personal contacts with local management at the various sites of the LSPs. These contacts help to explain the purpose of the study and create willingness to participate. The third reason is the actual willingness to participate in the study. Eventually, 7 LSPs were willing to participate in this study. After double-checking the available resources, 3 LSPs had time constraints and could therefore not participate in the study.

Since the relationship between a LSPs and a client is the unit of analysis, it is important to identify per LSP their clients in order to determine which relationships are subject of analysis. There were some small differences in selecting the relationships to be included in the sample. All LSPs gave an overview of all the clients they serve. For some LSPs all client relationships were included in the sample and for other LSPs some clients were selected from the list. This was done, because the number of clients was relatively high and due to time constraints only a limited number of relationships could be researched. The selection is based on:

- managerial estimates about the willingness of clients to participate
- managerial interests in specific client relationships
- specific time constraints in the LSP organization

3.3.3 Unit of data collection

Besides determining which relationships were added to the sample, it was equally important that the questionnaire would be filled out by the correct person of both the LSP and the client. The respondent had to be involved in contractual aspects and to be aware of the relationship between the LSP and the client. It varied per organization, but the respondent had a function in middle management up to higher management. Since the LSPs were the primary contact the respondents could be determined very easily. For the clients the respondent was most of the times the counterpart. In some cases the questionnaire was forwarded to the eligible person in the client's organization. The respondents were located in the Netherlands, the United States, the United Kingdom, Germany, Greece, Italy, Russia, France and Sweden and the data was collected at the end of 2008 and the beginning of 2009.

3.3.4 Sample size

In determining the sample size, the following factors had to be considered (Malhotra and Birks, 2003):

1. The importance of the decision: this research required a large sample, because precise information was needed to test the hypotheses.

2. The nature of the research: a questionnaire was chosen as research strategy. Characteristics of a questionnaire are a large number of research units and quantitative data analysis. Both characteristics advocate a large sample.

3. The number of variables: the model consists of 6 variables, which is a large number. A large sample was thus required.

4. The nature of analysis: sophisticated analysis using multivariate techniques was required; therefore the sample size should be large.

5. Sample sizes used in similar studies: similar studies show final sample sizes of 62 to 472 respondents (Golicic, 2007; Golicic and Mentzer, 2006; Gounaris, 2005; Knemeyer and Murphy, 2005; Min et al., 2005; Sandberg, 2007; Simatupang and Sridharan, 2005).

6. Incidence rates: no information available.

7. Completion rates: similar studies show completion rates varying from 8% to 62% (Golicic, 2007; Golicic and Mentzer, 2006; Gounaris, 2005; Knemeyer and Murphy, 2005; Min et al., 2005; Sandberg, 2007; Simatupang and Sridharan, 2005).

8. Resource constraints. Given the limited time for this research, a final sample size of 120 respondents was strived for. This number is large enough to perform the necessary analysis techniques and small enough to collect by one person within reasonable time.

3.3.5 *Execution sampling process*
The mail questionnaire followed the five-step process recommended by Dillman (2000). The first step involved an initial contact to pre-notify the respondent. The second step was sending the questionnaire along with a letter explaining the purpose of the questionnaire. A reminder postcard was mailed for the third step. If necessary, the fourth step consisted of another letter and questionnaire, and the final step was a follow-up phone call to encourage response. The final questionnaire was distributed to 240 different pre-qualified managers from the LSPs and their clients.

3.4 Questionnaire design
The questionnaire was formed by questions and statements. Respondents needed to state whether they agreed or disagreed with the statements, which could be done on seven points Likert scales ranging from "totally disagree" to "totally agree". The questions, used to measure relationship effectiveness, could also be answered on seven points Likert scales, but these scales had customized labels. The answer categories varied from "not at all" to "to a great extent". Benefits of Likert scales are that they are easily constructed and processed. Furthermore, they are easy to understand for respondents (Malhotra and Birks, 2003). The

measurement level of data generated by these scales is the interval level, which is necessary for many statistical analyses.

The questionnaire started with a short introduction of the research and the type of question the respondent needed to answer. After the introduction, six classification questions were asked (years of cooperation, services provided in relationship, people working in organization, type of organization, turnover organization, and function respondent). Next, LSPs needed to answer/give their opinion about thirty questions/statements. For the clients there was one question less.

3.5   Operationalization

In this paragraph, the variables in the conceptual model are translated into measurable items.

3.5.1   Contract formality

The items used in this thesis to measure contract formality are adopted from Atkin and Rinehart (2006) and Frankel et al. (1996), because their typology of contract formality is the same as the one used in this thesis. Furthermore, the scales proved to be valid and reliable. The respondents were asked to state their (dis)agreement with the following items:

- The terms of our relationship between our company and our client/LSP have been written down in detail.
- Our expectations of our client/LSP have been communicated in great detail.
- In coordinating our activities with our client/LSP, formal contractual terms have been developed.
- The terms of our relationship with our client/LSP have been explicitly verbalized and discussed.

3.5.2   Negotiation thoroughness

According to Sankaran et al. (2002), the thoroughness during contract negotiations has various indicators, which were adapted in this study so they could be measured on a 7-points Likert scale (the fifth statement could only be answered by LSPs):

During contract negotiations..............

- We refrained from making firm and strong monetary commitments.
- We insisted on integrated logistics management.
- We carefully handled staffing issues.
- We considered the quality issues of our company, not just with regard to delivery performance.

- We sought to understand the needs of the clients' customers, not just the clients.

3.5.3 *Trust*

Following Morgan and Hunt (1994), trust is measured as follows:

In our relationship, the client/LSP………

- Has high integrity.

- Can be counted on to do what is right.

- Is sincere in their promises.

- Treats our company fairly and justly.

- Is a company our company trusts completely.

3.5.4 *Commitment*

According to Morgan and Hunt (1994), commitment is measured as follows:

The relationship my firm has with the client/LSP……

- Is something our company is very committed to.

- Is something our company intends to maintain indefinitely.

- Deserves our company's maximum effort to maintain.

- Is something our company would do almost anything to keep.

- Is something our company cares a great deal about long-term.

3.5.5 *Relationship effectiveness*

Relationship effectiveness was measured with a scale based on the work of Van De Ven (1976) and Rückert and Walker (1987) and also used by Chimhanzi and Morgan (2003) in their research. It contains the following items, which are slightly rephrased:

- To what extent does your company have an effective working relationship with the client/LSP?

- To what extent does the client/LSP carry out its responsibilities and commitments in regard to your company?

- To what extent does your company carry out your responsibilities in regard to its client/LSP?

- To what extent does your company feel the working relationship between your company and the client/LSP is productive?

- To what extent is the time and effort your company spent in developing and maintaining the working relationship with the client/LSP worthwhile?

- Overall, to what extent was your company satisfied with the working relationship between your company and the client/LSP during the past 6 months?

3.5.6 *Relationship type*

The relationship type scale is adopted from Golicic and Mentzer (2006). It contained the following items:

- The business relationship our company has with the client/LSP could better be described as "cooperative" rather than an "arms length".
- The business relationship our company has with the client/LSP could better be described as "integrated" rather than "cooperative".
- Our company and the client/LSP coordinate some of our business functions as if we were one company.
- Our company's relationship with the client/LSP is more than just repeat transactions.
- Our company's relationship with the client/LSP could better be described as "strategic" than "transactional".

3.6 Data analysis

Data analysis took place with regression analysis in SPSS 16.0. This method of analysis is chosen, because it is a powerful and flexible procedure for analyzing associative relationships between a dependent variable and one or more independent variables.

4 Results

4.1 Data description

In this study 240 questionnaires were sent and 128 complete responses were returned. This is a response rate of 53.3% overall. There is a difference between the number of returned questionnaires by LSPs and clients. The response rate of the LSPs is (77/125) 61.6% and the response rate of the clients is (51/125) 44.3%. This can be explained by the fact that the LSP is the primary contact and therefore probably more willing to return questionnaires than the clients are. In total 82 relationships are researched. There were 46 relationships where both the LSP and the client returned their questionnaire and 36 relationships were just one of both parties returned the questionnaire.

The respondents are working in various organization types. Of all respondents, 60.2% is working for a LSP, 24.2% of the respondents characterize their organizations as manufacturer. The remaining 15.7% classify their organizations as supplier, wholesaler or another type of organization. Table 1 shows these characteristics.

Organization Type	Frequency	Percent	Cumulative percent
LSP	77	60.2	60.2
Manufacturer	31	24.2	84.4
Supplier	13	10.2	94.5
Wholesaler	5	3.9	98.4
Other	2	1.6	100.0
Total	**128**	**100**	

Table 1: Sample frequency distribution

The respondents can be classified in eight categories concerning their function within their organizations. The frequencies per category are displayed in table 2. As can be seen in table 2, 14.8% of the sample consists of top management level (vice-president and director). The majority of the sample consists of operations managers (21.1%) and logistics managers (25.0%). For the LSPs, project managers (8.6%) and key account managers (15.6%) play an important role and for the clients the purchasing managers (6.2%) are involved in contracting affairs. In the category "others" functions like financial manager and customer service manager are represented.

Function	LSP	Client	Total	Percent	Cumulative percent
Vice president	4	1	5	3.9	3.9
Director	13	1	14	10.9	14.8
Operations manager	14	13	27	21.1	35.9
Logistics manager	9	23	32	25.0	60.9
Purchasing manager	0	8	8	6.2	67.2
Key account manager	20	0	20	15.6	82.8
Project manager	11	0	11	8.6	91.4
Other	6	5	11	8.6	100
Total	**77**	**51**	**128**	**100**	

Table 2: Descriptive characteristics of the sample regarding function

Characteristics from the organizations are displayed in table 3 and table 4. As can be seen in table 3 the organizations have a wide range of turnover. Almost thirty-four percent (33.6%) of the respondents are working for an organization with a 2007 turnover of less than 100 million euros. Furthermore, 43.8% of the respondents are working for an organization with a turnover between 101 million and 1 billion euros. Respondents working for a LSP are well represented in this category (57.1%), but the number of respondents working for a client is much lower (37.2%). The remaining 22.7% of the respondents is working for an organization with a turnover larger than 1 billion euros, which are very large organizations. The percentage of respondents working at clients with a turnover larger than 1 billion euros is with 25.4% much larger than the percentage of LSPs (11.6%).

Respondents working for a client are well represented at smaller organizations and very large organization. Respondents working for a LSP are much more situated in the small and medium-sized organizations.

Turnover	LSP	Client	Total	Percent	Cumulative percent
<100 mio	24	19	43	33.6	33.6
101-250 mio	12	6	18	14.1	47.7
251-500 mio	22	3	25	19.5	67.2
501-1.000 mio	9	4	13	10.2	77.3
1.001-10.000 mio	1	6	7	5.5	82.8
>10.000 mio	9	13	22	17.2	100
Total	**77**	**51**	**128**	**100**	

Table 3: Descriptive characteristics of the organizations regarding turnover

Besides the turnover, respondents were also asked to describe the organization by stating the number of people working in the organization. The characteristics are presented in table 4. Almost forty percent (39.8%) of the respondents is working in an organization with less than

1000 people. These organizations can be classified as small and medium-sized organizations. Another 40.6% of the respondents are working for organizations with 1.000 to 10.000 people. Those organizations are already large. Especially the number of respondents of LSPs is very high for the category 1.001-5.000 (32 responses). Since there are only 7 LSPs participating and multiple relationships per LSP are examined, it is likely that this will result in a high number of responses in one or two categories. The remaining 19.5% is working for organizations with more than 10.000 people. These are really large organizations.

People	LSP	Client	Total	Percent	Cumulative percent
<250	22	17	39	30.5	30.5
251-1.000	3	9	12	9.4	39.8
1.001-5.000	32	5	37	28.9	68.8
5.001-10.000	9	6	15	11.7	80.5
10.001-25.000	9	11	20	15.6	96.1
>25.000	2	3	5	3.9	100.0
Total	**77**	**51**	**128**	**100.0**	

Table 4: Descriptive characteristics of the organizations regarding number of employees

Respondents are also asked about the duration of the relationship which was object of study. As can be seen in table 5 there is a small percentage (3.9%) of relationships which were formed less than a year ago. The majority of the relationships have been in place for 3 to 10 years. But also relationships which have already lasted for more than 10 years are included.

# Years	LSP	Client	Total	Percent	Cumulative percent
<1 year	4	1	5	3.9	3.9
1-2 years	10	7	17	13.3	17.2
3-5 years	25	20	45	35.2	52.3
6-10 years	24	17	41	32.0	84.4
> 10 years	14	6	20	15.6	100.0
Total	**77**	**51**	**128**	**100.0**	

Table 5: Sample characteristics of the relationship duration

The respondents were asked to indicate which logistics functions were part of the relationship. A list of functions was provided and the respondents indicated whether each function was currently outsourced (clients) or performed for the client (LSPs). As indicated in table 6, warehousing (83.6%) and transportation (82.8%) were the functions most commonly outsourced (clients) or performed (LSPs) by the respondents. Tracking & tracing (55.5%) and inventory management (53.9%) were, on the other hand, the least commonly outsourced or performed functions in the relationship.

Activity	LSP	Client	Total	Percent
Warehousing	67	40	107	83.6
Transportation	61	45	106	82.8
Order processing	56	30	86	67.2
Customs clearance	47	35	82	64.1
VAL	49	32	81	63.3
Return logistics	46	34	80	62.5
Tracking & Tracing	42	29	71	55.5
Inventory management	45	24	69	53.9

Table 6: Descriptive characteristics about activities included in the relationships

4.2 Assumptions for regression analysis

Regression modeling requires a number of assumptions to be met before it can be used to estimate model parameters and test significance. Therefore the major assumptions are discussed below (De Vocht, 2002; Garson, 2006; Malhotra and Birks, 2003):

1. Normally distributed variables. A common rule of thumb is that the skewness and kurtosis should be within the +1 to -1 range for the data to be accepted as normally distributed (Garson, 2006). All variables were tested on their skewness and kurtosis and all values were between -.834 and .643. Therefore this assumption is met.

2. Linear relationships between the independent and dependent variables. Testing for non-linearity is necessary because regression analysis assumes linearity. Inspection of scatter plots is a common method for determining if non-linearity exists in a relationship. The residuals do not form a specific pattern when displayed in a scatter plot which means the relationships are linear. The assumption is met.

3. Absence of multicollinearity. Multicollinearity in regression models is an unacceptable high level of inter-correlation among the independents, such that the effects of the independents cannot be separated. A rule of thumb is that multicollinearity may be a problem if a correlation is >.90 or several are >.70 in the correlation matrix formed by all the independents (De Vocht, 2002; Garson, 2006). In the correlation matrix the highest value is .717 between relationship type and commitment, see appendix 1. Therefore, the assumption is met.

4.3 Unidimensionality

If the researcher is attempting to measure a construct with multiple indicator variables, then the researcher must demonstrate that the items measure the same thing. There are several methods of doing this (Garson, 2006).

4.3.1 Internal consistency

The internal consistency was calculated to see whether the different items of each latent variable measured indeed one variable. Cronbach's alpha was used for measuring the internal consistency. Cronbach's alphas of 0.7 or higher indicate that the scales have a good level of internal consistency and are thus considered adequate (Nunnally, 1978).

Table 7 reveals that the Cronbach's alphas for all the scales are 0.78 or higher, which suggest that for each construct, there is a reasonable degree of internal consistency between the corresponding indicators. Overall, these measurement results are satisfactory and suggest that it is appropriate to proceed with the evaluation of the model.

Construct	Cronbach's Alpha	Number of items	Sample size
Contract Formality	.861	4	128
Thoroughness of Contract Negotiations	.781	3	128
Trust	.929	5	128
Commitment	.864	5	128
Relationship Type	.850	5	128
Relationship Effectiveness	.854	6	128

Table 7: Internal consistency

4.3.2 Exploratory factor analysis

In the second stage of further checking the validity of the model, an exploratory factor analysis using principal component analysis was performed. The commonly recommended method of varimax rotation with Kaiser normalization was used to clarify the factors (Loehlin, 1998). Since the number of constructs was determined prior to the analysis, the exact number of factors to be extracted was provided in this analysis. The exploratory factor analysis reveals that all items load on their respective factors as was specified a priori. Six items loaded on two constructs. It is decided to keep them in their original construct because of theoretical considerations and based on the high internal consistencies they do not seem to cause problems. The results are presented in appendix 2.

4.4 Regression analysis

Multiple regression can establish that a set of independent variables explain a proportion of the variance in a dependent variable at a significant level, and the relative predictive importance of the independent variables (Garson, 2006). In this research, multiple regression was used to investigate the five hypotheses as stated in chapter 2. The independent variables are contract formality, contract negotiations, trust and commitment. The dependent variable is relationship effectiveness. The moderating variable is relationship type. Table 8 illustrates the

multiple regression results testing the relationships. The results indicate that the independent variables (including relationship type) explain 48.9% of the variance in relationship effectiveness.

Model	B	Beta	Sig.
Intercept	2.084		.000 (***)
Contract Formality	.238	.352	.000 (***)
Negotiation thoroughness	-.175	-.252	.003 (**)
Trust	.339	.474	.000 (***)
Commitment	.027	.033	.728
Relationship Type	.177	.237	.015 (*)
Model F	25.312		.000 (***)
Adjusted R²	48.9%		
Sample size (N)	128		

Table 8: Multiple regression results

Hypothesis 1 states that an increase in the level of contract formality increases the level of relationship effectiveness. This hypothesis is supported: a strong positive relationship (β = .352, $p<0.001$) exists. Hypothesis 2 states that an increase in the level of negotiation thoroughness increases the level of relationship effectiveness. This hypothesis is not supported. A significant negative relationship (β = -.252, $p<0.01$) is found, which means that a higher level of negotiation thoroughness leads to a lower level of relationship effectiveness. Hypothesis 3 states that an increase in the level of trust increases the level of relationship effectiveness. This hypothesis is supported as a strong positive relationship is found (β = .474, $p<0.001$). Hypothesis 4 states that an increase in the level of commitment increases the level of relationship effectiveness. This hypothesis is not supported, because the relationship is not significant ($p>0.05$).

All independent variables were included in the regression analysis, also the moderating variable relationship type. For relationship type to be considered as a moderating variable, it first should have a significant direct effect on the dependent variable. This is the case, because the relationship is positive (β = .237, $p<0.05$). When a variable changes the relation between an independent variable and the dependent variable it is called a moderating effect (Garson, 2006). Hypothesis 5a states that relationship type moderates the relationship between contract formality and relationship effectiveness. To test the hypothesis, interaction terms need to be added to the model as cross products of the independents. This means contract formality *

relationship type (CF*RT) is added to the regression analysis. The results are illustrated in table 9 and model 1. CF*RT is not significant ($p>0.05$), therefore hypothesis 5a is not supported. Hypothesis 5b states that relationship type moderates the relationship between contract negotiations and relationship effectiveness. Model 2 illustrates the results of this regression analysis. The cross product contract negotiations * relationship type (CN*RT) is not significant ($p>0.05$), therefore hypothesis 5b is not supported. Hypothesis 5c was not supported, because commitment was not significant in the first place. Hypothesis 5d states that relationship type moderates the relationship between trust and relationship effectiveness. Model 3 illustrates the results of this regression analysis. The cross product trust * relationship type (T*RT) is negative and significant ($\beta = -1.399$, $p<0.01$).

Variables	Model 1			Model 2			Model 3		
	B	Beta	Sig.	B	Beta	Sig.	B	Beta	Sig.
Intercept	1.488		.108	1.795		.072	2.289		.000
Contract Formality (CF)	.363	.537	.042	.232	.344	.000	.230	.341	.000
Negotiation Thoroughness (CN)	-.180	-.260	.002	-.104	-.150	.620	-.141	-.203	.014
Trust (T)	.349	.488	.000	.348	.485	.000	.287	.401	.000
Relationship Type (RT)	.334	.447	.101	.262	.351	.214	.209	.280	.000
CF * RT	-.027	-.312	.464						
CN * RT				-.014	-.167	.727			
T * RT							-.150	-.201	.003
Model F	25.482		.000	25.313		.000	29.027		.000
Adjusted R²	49.1%			48.9%			54.3%		
Sample size (N)	128			128			128		

Table 9 Multiple regression results with moderating variable

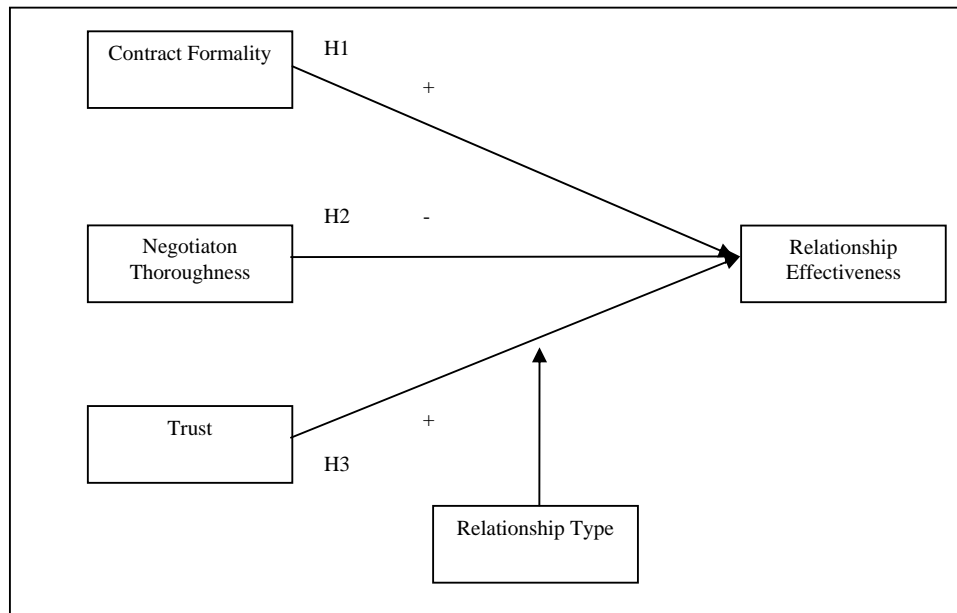The final model is illustrated in figure 2.

Figure 2: Final model

4.5   Additional analyses

Besides looking at the descriptives of the total sample, it is interesting to see if there are differences between LSPs and clients. Only for commitment there seems to be a difference with mean scores of 5.6 for LSPs and 5.0 for clients, see table 10.

Construct	Role	Sample size	Mean	Std. deviation
Contract Formality	LSP	77	5.1169	1.25629
	Client	51	5.4363	1.14656
Thoroughness of Contract Negotiations	LSP	77	4.9697	1.29572
	Client	51	4.8889	1.01251
Trust	LSP	77	5.2649	1.27875
	Client	51	5.5176	.91317
Commitment	LSP	77	5.6208	.98011
	Client	51	5.0039	.93935
Relationship Type	LSP	77	4.9896	1.06519
	Client	51	4.7961	1.15965
Relationship Effectiveness	LSP	77	5.2100	.84354
	Client	51	5.4379	.78100

Table 10: Descriptives compared between LSPs and clients

The mean scores for LSPs and their clients were compared using *t*-tests. The use of a *t*-test showed that there is only a statistical difference between the two sub-samples concerning commitment ($t = 3.544$, $p = 0.001$). All other means are not significantly different. For the results of the *t*-test, see appendix 3.

To check if the final model is applicable to both LSPs and clients, regression modeling is used two times. In model 1 only the data from LSPs are included and in model 2 only the data from clients are included. Table 11 illustrates the regression results testing the relationships. The results indicate for model 1 that the independent variables explain 48.9% of the variance in relationship effectiveness. Commitment has no significant effect on relationship effectiveness ($p>0.05$), but the remaining variables have significant effects which are in the same direction as in the final model. Relationship type is significant ($p<0.05$) and therefore it can be tested if also a moderating effect exists. After testing it can be concluded that relationship type indeed moderates the relation between trust and relationship effectiveness ($\beta = -1.1462$, $p<0.05$). For clients the independent variables even explain 57.7% of the variance in relationship effectiveness. Remarkable is that contract formality ($\beta = .364$, $p<0.05$) and trust ($\beta = .470$, $p<0.001$) are the only two variables which are significant. Contract negotiations, commitment and relationship type are not significant ($p>0.05$).

Variables	Model 1: LSPs only			Model 2: Clients only		
	B	Beta	Sig.	B	Beta	Sig.
Intercept	2.373		.000	1.022		.081
Contract Formality (CF)	.183	.272	.017	.248	.364	.004
Negotiation Thoroughness (CN)	-.227	-.348	.002	.015	.019	.892
Trust (T)	.262	.397	.000	.402	.470	.000
Commitment	.094	.109	.450	.081	.097	.510
Relationship Type (RT)	.226	.285	.044	.079	.117	.437
Model F	15.573		.000	12.265		.000
Adjusted R²	48.9%			57.7%		
Sample size (N)	77			51		

Table 11: Multiple regression results per sub-sample

Overall the results of the regression models show that differences exist in the relationships between the independent variables and the dependent variable in the models for LSPs compared to those for clients.

5 Discussion and implications

5.1 Conclusions and theoretical implications

The principle objective of this research was to examine the relationship between contractual and relational aspects on the one hand and relationship effectiveness of 3PL user-provider relationships on the other hand. Therefore the following research question was formulated:

What is the impact of contractual and relational aspects on the effectiveness of relationships between LSPs and their clients and is this influenced by relationship type?

A conceptual model has been developed containing eight hypotheses to answer the research question. By using multiple regression analysis three hypotheses were supported. The results of the research provide valuable insights into the roles contractual and relational elements play in 3PL relationships for both LSPs and clients. A positive relation exists between contract formality and relationship effectiveness, which is in accordance with the majority of the existing literature. In the research of Min et al. (2005) the questionnaire respondents placed emphasis on the need to formalize collaboration arrangements as an important prerequisite and foundation for collaboration. According to Qureshi et al. (2007) formal contracts should be better deployed to improve relationship effectiveness.

A negative relation exists between the thoroughness of contract negotiations and relationship effectiveness. This relation is remarkable, because based on the existing literature a positive relation between those variables was expected. A possible explanation is the existence of close relationships. The relationships included in this research lasted for more than 3 years in more than 82% of the cases. It can be assumed that the duration of the relationship is an indicator of relationship type and therefore the relationships could be classified as close. The duration of the relationship correlates with relationship type, but it is only a weak positive relation (.192). Roxenhall and Ghauri (2004) state, that negotiations are shorter when close relationship exist. If this is combined with the statement that the key to the success of any logistics contract is the negotiation of the price and the performance levels the 3PL provider must achieve while rendering the services, it seems logical that thorough contract negotiations about those aspects will lead to lower levels of relationship effectiveness.

The positive relationship between trust and relationship effectiveness can also be found in the literature (Knemeyer and Murphy, 2004; Lambert et al., 1996). It can be said that the findings of this research are in line with existing research.

Commitment was not significantly influencing relationship effectiveness. This is remarkable, because it is often found that commitment is a key mediating variable in relationships (Gounaris, 2005; Morgan and Hunt, 1994). During the last two decades, the 3PL industry has changed dramatically. There is an emergence of global organizations offering a portfolio of logistics solutions and it is recognized that supply chains are a source of competitive advantage. As a part of collaboration, outsourcing leads to significant benefits (Manuj and Mentzer, 2008; Stefansson, 2006). Due to fierce competition companies are obliged to have partnerships. These decisions are more in line with a calculative component than the affective component of commitment. In this research no distinction has been made between affective and calculative commitment. It seems that all items were measuring the affective component of commitment. Therefore no significant relation was found. Besides that, Morgan and Hunt (1994) found out that commitment was influencing the relationship, however they were investigating a sample of independent automobile tire retailers in the US and one of their limitations was the generalizability of their results. A solution could be to make a distinction between affective and calculative commitment in order to test whether calculative commitment significantly influences relationship effectiveness. However, empirical studies that have explicitly made the distinction between the two types of commitment are limited (Geyskens et al., 1996; Gounaris, 2005).

Relationship type only moderates the relation between trust and relationship effectiveness. All other hypothesized moderating effects were not significant. When a relationship is closer (high score on relationship type), trust is of less importance than when the relationship is not very close (low score on relationship type). It is possible that trust and relationship type are compensating each other and cannot be both present at the same time. Therefore when a close relationship exists, trust is experienced as common sense and of less importance as a separate factor compared to a relationship which is not very close.

Besides findings related to the final model, also other findings are reported. Comparing the descriptives of LSPs and clients, differences are present. The mean for trust was higher for clients, although not significantly, while the mean for commitment was significantly higher for LSPs. This is in accordance with Golicic (2007) who found out that a significant difference between clients and LSPs exists. It is interesting that clients noted higher levels of trust in their relationship with LSPs and yet lower levels of commitment when these two constructs have been shown to go hand-in-hand in inter-organizational relationships. According to Knemeyer and Murphy (2005) an explanation for these findings may be found in the mechanics of client-LSP arrangements. That is, clients are buying one or more services,

and solutions to one or more problems from LSPs. In an effort to assure satisfactory service, clients should employ a systematic process to select the appropriate provider. Such a systematic process might allow clients to weed out inappropriate LSPs, with an end result that trust tends to be present in the LSPs that are eventually chosen. LSPs, on the other hand, may be more focused on the relationship marketing outcomes, because in buyer-seller arrangements LSPs are often times judged on outcomes rather than contractual elements. Therefore, the level of commitment is significantly higher for LSPs than for clients. Clients are also not as committed to LSPs, because there are so many LSPs available, and thus switching is easy.

Another important finding was not hypothesized a priori. Van Laarhoven et al. (2000) found out that 3PL relationships are rather modest in scope and level of ambition. The relationships are mostly limited to transportation and warehousing. Bolumole (2003) argues that evolving from basic services to more value-adding responsibilities helps LSPs to become more integral to the client's strategies and operations. Nowadays, LSPs offer services in a wide variety of areas and more and more activities are being outsourced (Stefansson, 2006). In this research warehousing and transportation are also the two activities mostly outsourced, but all other value-adding activities are present in more than 50% of the relationships. This research confirms the view that the 3PL industry is indeed evolving in scope of activities.

After conducting this research six conclusions can be drawn. First, it can be concluded that both contractual aspects and relationship aspects influence relationship effectiveness. Trust and contract formality are almost equally important, because both constructs have a rather important positive impact on relationship effectiveness. The second conclusion is, that the thoroughness of contract negotiations negatively influences relationship effectiveness, which is the opposite of what was expected a priori. Third, relationship type influences the relation between trust and relationship effectiveness. The fourth conclusion is that the final model explains 48.9% of the variance of relationship effectiveness, which is an acceptable score, since it is in line with other similar studies. The fifth conclusion is that differences exist between LSPs and clients regarding the suitability of the final model and regarding the level of commitment. For LSPs the final model contains contract formality, thoroughness of contract negotiations and trust. For clients only contract formality and trust are significant. Commitment is significant higher for LSPs compared to clients. The final conclusion of this research confirms the view that the 3PL industry is evolving in scope.

The contribution of this research to existing literature is filling the gap of lacking empirical research in the 3PL industry. Furthermore that both trust and contracts are important factors in relationships and therefore a deeper knowledge of the role of contractual and relational aspects in relationships in the 3PL industry is provided. Also this research tests hypotheses on both sides of the relationship and therefore this study adds knowledge to both perspectives and shows differences exist. Finally this research is a starting point for more empirical studies in the 3PL industry.

5.2   Managerial implications

This research has implications for managers from both LSPs and clients. Successful SCM can only be achieved when organizations successfully develop and manage relationships with other organizations in their supply chain. The final model gives valuable insights about contractual and relational aspects and their relation with relationship effectiveness. Managerial attention is certainly necessary with regard to the construction and use of formal contracts, equal if not greater attention must be paid to the development and support of trust to achieve successful long-term relationships. Both aspects function as complements. This research finding is a large contribution, because formal contracts have historically been seen by many firms as just a part of legal considerations (Frankel et al., 1996). In other words, to develop a more efficient relationship, both LSPs and clients must develop high levels of trust and contract formality and pay less attention to the thoroughness of contract negotiations. The final model can be applied to maintain and negotiate 3PL arrangements more effectively. The knowledge is especially important for re-negotiating contracts, because too much focus on this has a negative impact on relationship effectiveness. Another useful outcome is that the closer the relationship becomes, the higher the relationship effectiveness is. Therefore, it is important to try to evolve the client-LSP relationship, because value adding activities provide more profitable, growth-oriented relationships as they offer higher margins to LSPs. It is important to recognize and understand any differences as well as similarities between LSPs and clients. As was presented before, LSPs have a higher level of commitment and clients have a higher level of trust, but not significant. While differences seem logical and have been extensively discussed, the research presented here provides this evidence too. It shows that for LSPs three constructs are significant (contract formality, negotiation thoroughness and trust) and for clients just two (contract formality and trust). Similar is that LSPs and clients experience their relationships are equally effective, in other words there is not a significant difference between the mean scores on relationship effectiveness.

5.3 Limitations and directions for future research

This research has three important limitations, that all (might) have severe consequences for generalizing the results. More research is needed to address some limitations of this study.

The first limitation is the availability of data. The total sample of 128 returned questionnaires is in line with other studies, but these questionnaires are generated by the participation of seven LSPs. While a relatively small group of organizations participated in the research, many global organizations were represented. Therefore, although the sample size represents a limitation, that limitation is balanced by the quality of the respondent's base and their expertise and experience in the area. Future research should include more LSPs, which will automatically lead to more returned questionnaires if a similar approach is followed.

A second limitation is the convenient sampling that was used. Convenient sampling is part of non-probability sampling. This sampling method does not use chance selection procedures, but rather relies on the personal judgment of the researcher. Convenient samples can be used in exploratory research and preferably not in explanatory research. A possible direction for future research is to adopt a probability sampling technique, like systematic sampling or simple random sampling.

The third limitation is the cross-sectional design employed. Collaboration is a time-oriented process, for instance trust increases as the relationship matures. Thus, the final model could benefit from being tested in a longitudinal design. In that way, it can be determined whether and/or how the importance of contractual and relational aspects changes throughout the relationship.

Another direction for future research is the development of an extended model. This research tested a fairly simple relationship model within a client-LSP relationship. The final model explained almost 50% of the variance in relationship effectiveness. Future research can create a more comprehensive model by examining other constructs, like cultural influences, top management support and communication (Golicic, 2007; Knemeyer and Murphy, 2005; Sandberg, 2007), to achieve a better fit. Also more research is needed to help organizations measure the value of their relationships, beyond relying on perceptual evaluations. Higher relationship effectiveness also has to be quantified with metrics. Then, the efforts in improving the relationship effectiveness could be evaluated. A last direction for future research is an alternative approach to construct measurement. This applies to commitment, which did not have a significant effect on relationship effectiveness. Geyskens et al. (1996) already spoke of the distinction between calculative and affective commitment.

Appendix 1: Correlation matrix

Correlations

		CF	CN	T	C	RT	RE
CF	Pearson Correlation	1.000	.579**	.248**	.352**	.381**	.425**
	Sig. (2-tailed)		.000	.005	.000	.000	.000
	N	128.000	128	128	128	128	128
CN	Pearson Correlation	.579**	1.000	.311**	.393**	.473**	.224*
	Sig. (2-tailed)	.000		.000	.000	.000	.011
	N	128	128.000	128	128	128	128
T	Pearson Correlation	.248**	.311**	1.000	.491**	.443**	.604**
	Sig. (2-tailed)	.005	.000		.000	.000	.000
	N	128	128	128.000	128	128	128
C	Pearson Correlation	.352**	.393**	.491**	1.000	.717**	.460**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	128	128	128	128.000	128	128
RT	Pearson Correlation	.381**	.473**	.443**	.717**	1.000	.485**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	128	128	128	128	128.000	128
RE	Pearson Correlation	.425**	.224*	.604**	.460**	.485**	1.000
	Sig. (2-tailed)	.000	.011	.000	.000	.000	
	N	128	128	128	128	128	128.000

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix 2: Exploratory factor analysis

Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
CF1			.800			
CF2			.725			
CF3			.812			
CF4			.739			
CN2						.668
CN3						.725
CN4						.646
T1	.749					
T2	.844					
T3	.837					
T4	.879					
T5	.881					
C1	.472	.511				
C2		.761				
C3		.813				
C4		.750				
C5		.784				
RT1					.643	
RT2					.697	
RT3					.729	
RT4		.549			.463	
RT5		.557			.486	
RE1				.673		
RE2	.581			.563		
RE3				.763		
RE4	.402			.478		
RE5				.713		
RE6	.686					

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

Appendix 3: T-test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
CF	Equal variances assumed	,484	,488	-1,457	126	,148	-,31939	,21916	-,75311	,11433
	Equal variances not assumed			-1,485	113,795	,140	-,31939	,21511	-,74554	,10675
CN	Equal variances assumed	3,042	,084	,376	126	,708	,08081	,21510	-,34487	,50648
	Equal variances not assumed			,395	122,486	,694	,08081	,20471	-,32442	,48603
T	Equal variances assumed	5,114	,025	-1,220	126	,225	-,25271	,20721	-,66277	,15734
	Equal variances not assumed			-1,303	125,237	,195	-,25271	,19387	-,63641	,13098
C	Equal variances assumed	1,332	,251	3,544	126	,001	,61686	,17407	,27238	,96133
	Equal variances not assumed			3,575	110,355	,001	,61686	,17256	,27490	,95882
RT	Equal variances assumed	,369	,545	,971	126	,333	,19353	,19925	-,20078	,58785
	Equal variances not assumed			,955	100,790	,342	,19353	,20274	-,20866	,59572
RE	Equal variances assumed	,001	,979	-1,541	126	,126	-,22795	,14791	-,52067	,06477
	Equal variances not assumed			-1,566	112,809	,120	-,22795	,14561	-,51643	,06052

References

Anthony, T. (2000), Supply chain collaboration: success in the new internet economy, *Achieving Supply Chain Excellence through Technology,* Montgomery Research Inc., San Francisco, CA, Vol. 2, pp. 41-44

Apte, U.M. and A.P.J. Vepsalainen (1993), High tech or high touch? Efficient channel strategies for delivering financial services, *Journal of Strategic Information Systems*, 2(1), pp. 39-54

Atkin, T.S. and L.M. Rinehart (2006), The effect of negotiation practices on the relationship between suppliers and customers, *Negotiation Journal,* 2(1), pp. 47-65

Bagchi, P. and H. Virum (1996), European logistics alliances: a management model, *The International Journal of Logistics Management,* 7(1), pp. 93-108

Barratt, M (2003), Positioning the role of collaborative planning in grocery supply chains, *The International Journal of Logistics Management,* 14(2), pp. 53-66

Bask, A.H. (2001), Relationships among 3PL providers and members of supply chains, *Journal of Business & Industrial Marketing*, 16(6), pp. 470-486

Bhatnagar, R. and S. Viswanathan (2000), Re-engineering global supply chains, *International Journal of Physical Distribution & Logistics Management,* 30(1), pp. 13-34

Bolumole, Y.A. (2003), Evaluating the supply chain role of logistics service providers, *The International Journal of Logistics Management,* 14(2), pp. 93-107

Bolumole, Y.A., R. Frankel and D. Naslund (2007), Developing a theoretical framework for logistics outsourcing, *Transportation Journal*, Spring, pp. 35-54

Bowersox, D.J. (1990), Strategic benefits of logistics alliances, *Harvard Business Review*, Vol. 68 July-August, pp. 36-45

Boyson, S., T. Corsi, M. Dresner and E. Rabinovich (1999), Managing effective third party logistics relationships: what does it take? *Journal of Business Logistics*, 20(1), pp. 73-100

Bucklin, L.P. and S. Sengupta (1993), Organizing successful co-marketing alliances, *Journal of Marketing,* Vol. 57, pp.32-46

Chan, F.T.S. and H.J. Qi (2003), Feasibility of performance measurement system for supply chain: a process-based approach and measures, *Integrated Manufacturing Systems,* 14(3), pp. 179-190

Chimhanzi, J., R.E. Morgan (2005), Explanations from the marketing/human

resources dyad for marketing strategy implementation effectiveness in service firms, *Journal of Business Research,* Vol. 58, pp. 787-796

Ciccotello, C.S. and M. Hornyak (2000), Cooperation via contract: an analysis of research and development agreements, *Journal of Corporate Finance,* Vol. 6, pp. 1-24

Crum, C. and G.E. Palmatier (2004), Demand collaboration: what's holding us back? *Supply Management Review,* 8(1), pp. 54-61

Delfmann, W., S. Albers and M. Gehring (2002), The impact of electronic commerce on logistics service providers, *International Journal of Physical Distribution & Logistics Management*, 32(3), pp. 203-222

Dillman, D.A. (2000), *Mail and internet surveys: the tailored design method*, New York, John Wiley and Sons Inc.

Dobler, D.W., D.N. Burt and L. Lee Jr. (1990), *Purchasing and materials management,* New York, NY: McGraw-Hill

Domberger, S (1998), *The contracting organization: a strategic guide to outsourcing,* Oxford, Oxford University Press

Fisher, R.J., E. Maltz and B.J. Jaworski (1997), Enhancing communication between marketing and engineering: the moderating role of relative functional identification, *Journal of Marketing,* Vol. 61, pp. 54-70

Frankel, R., J. Schmitz Whipple and D.J. Frayer (1996), Formal versus informal contracts: achieving alliance success, *International Journal of Physical Distribution & Logistics Management*, 26(3), pp. 47-63

Garson, G.D. (2006), Syllabus for PA 765: Quantitative research in public administration, North Carolina State University, http://www2.chass.ncsu.edu/garson/pa765, retrieved 25-05-2009

Geyskens, I., J.E.M. Steenkamp, L.K. Scheer and N. Kumar (1996), The effects of trust and interdependence on relationship commitment: a trans-Atlantic study, *International Journal of Research in Marketing,* 13(4), pp. 303-317

Golicic, S.L. and J.T. Mentzer (2006), An empirical examination of relationship magnitude, *Journal of Business Logistics*, 27(1), pp. 81-108

Golicic, S.L. (2007), A comparison of shipper and carrier relationship strength, *International Journal of Physical Distribution & Logistics Management,* 37(9), pp. 719-739

Gounaris, S.P. (2005), Trust and commitment influences on customer retention: insights from business-to-business services, *Journal of Business Research*, Vol.58, pp. 126-140

Halldórsson, A. and T. Skjøtt-Larssen (2004), Developing logistics competencies through third party logistics relationships, *International Journal of Operations & Production Management*, 24(2), pp. 192-206

Handfield, Robert B. and Christian Bechtel (2002), The role of trust and relationship structure in improving supply chain responsiveness, *Industrial Marketing Management*, Vol. 31, pp. 367-382

Hauglund, S.A. (1999), Factors influencing the duration of international buyer-seller relationships, *Journal of Business Research*, 46(3), pp. 273-280

Hines, P., R. Silvi and M. Bartolini (2002), Demand chain management: an integrative approach, *Journal of Operations Management*, 20(6), pp. 707-728

Jagdev, H.S. and K.D. Thoben (2001), Anatomy of enterprise collaboration, *Production Planning & Control,* 12(5), pp. 437-451

Jané, J. and A. de Ochoa (2006), *The handbook of logistics contracts, a practical guide to a growing field.* Houndmills, Basingstoke, Hampshire: Palgrave McMillan

Kahn, K.B., R.C. Reizenstein and J.O. Rentz (2004), Sales – Distribution inter-functional climate and relationship effectiveness, *Journal of Business Research,* Vol. 57, pp. 1085-1091

Knemeyer, A.M. and P.R. Murphy (2004), Evaluating the performance of third party logistics arrangements: a relationship marketing perspective, *The Journal of Supply Chain Management*, 40(1), pp. 35-51

Knemeyer, A.M. and P.R. Murphy (2005), Is the glass half full or half empty? *International Journal of Physical Distribution & Logistics Management*, 35(10), pp. 708-727

Krauth, E., H. Moonen, V. Popova and M. Schut (2005), Performance indicators in logistics service provision and warehouse management – a literature review and framework, *Euroma 2005,* Budapest Hungary

Laarhoven, P. van, M. Berglund and M. Peters (2000), Third-Party Logistics in Europe – five years later, *International Journal of Physical Distribution & Logistics Management*, 30(5), pp.425-442

Lambert, D.M., M.A. Emmelhainz and J.T. Gardner (1996), Building successful logistics partnerships, *Journal of Business Logistics,* 20(1), pp. 165-181

Lehtonen, T. (2006), Collaborative relationships in facility services, *Leadership & Organization Development Journal,* 27 (6), pp. 449-464

Lieb, R. and B.A. Bentz (2005), The use of third-party logistics services by large American

manufacturers: the 2004 survey, *Transportation Journal,* 44(2), pp. 5-15

Lim, W.S. (2000), A lemons market? An incentive scheme to induce truth-telling in third party logistics providers, *European Journal of Operational Research,* Vol. 125, pp. 519-525

Loehlin, J.C. (1998), *Latent Variable Models*, third edition Lawrence Erlbaum, Hillsdale, New Jersey

Malhotra, N.K. and D.F. Birks (2003), *Marketing Research: An applied approach*, Prentice Hall, Harlow, second European edition

Manuj, I. and J.T. Mentzer (2008), Global supply chain risk management strategies, *International Journal of Physical Distribution & Logistics Management*, 38(3), pp. 192-223

Marasco, A. (2007), Third party logistics: a literature review, *International Journal of Production Economics*, 113(01), pp. 127-147

Massey, G.R. and P.L. Dawes (2007), The antecedents and consequence of functional and dysfunctional conflict between Marketing Managers and Sales Managers, *Industrial Marketing Management,* Vol. 36, pp. 1118-1129

Mayer, R.C., J.H. Davis and F.D. Schoorman (1995), An integrative model of organizational trust, *Academy of Management*, 20(3), pp. 709-734

Mentzer, J.T., James H. Foggin and S.L. Golicic (2000), Collaboration: the enablers, impediments and benefits, *Supply Chain Management Review,* September/October 2000, pp. 52-58

Min, S., A.S. Roath, P.J. Daugherty, S.E. Genchev, H. Chen, A.D. Arndt and R.G. Richey (2005), Supply chain collaboration: what's happening? *The International Journal of Logistics Management*, 16(2), pp. 237-256

Morgan, R.M. and S.D. Hunt (1994), The commitment-trust theory of relationship marketing, *Journal of Marketing,* 58(3), pp. 20-38

Poppo, L. and T. Zenger (2002), Do formal contracts and relational governance function as substitutes or complements? *Strategic Management Journal,* Vol. 23, pp. 707-725

Qureshi, M.N., D. Kumar and P. Kumar (2007), Modeling the logistics outsourcing relationship variables to enhance shippers' productivity and competitiveness in logistical supply chain, *International Journal of Productivity and Performance Management,* 56(8), pp. 689-714

Rao, S. and C. Perry (2002), Thinking about relationship marketing: where are we know?

Journal of Business & Industrial Marketing, 17(2), pp. 598-614

Rinehart, L.M., E.R. Cadotte and C.J. Langley (1988), Shipper carrier contract
negotiations: a conceptual foundation for logistics managers, *International Journal of Physical Distribution & Logistics Management*, 18(6), pp. 43-51

Roxenhall, T. and P. Ghauri (2003), Use of the written contract in long-lasting
business relationships, *Industrial Marketing Management,* Vol.33, pp. 261-268

Rückert and Walker (1987), Marketing's interaction with other functional units: a conceptual
framework and empirical evidence, *Journal of Marketing,* Vol. 51, pp. 1-19

Samee, S. and P.G.P. Walters (2003), Relationship marketing in an international context: a
literature review, *International Business Review*, 12(2), pp. 193-214

Sandberg, E. (2007), Logistics collaboration in supply chains: practice vs. theory, *The International Journal of Logistics Management*, 18(2), pp. 274-293

Sankaran, J., D. Mun and Z. Charman (2002), Effective logistics outsourcing in New
Zealand, *International Journal of Physical Distribution & Logistics Management*, 32(8), pp. 682-702

Selviaridis, K. and M. Spring (2007), Third party logistics: a literature review
and research agenda, *The International Journal of Logistics Management*, 18(1), pp. 125-150

Shaw, R.B. (1997), *Trust in the balance*, San Francisco, CA, Jossey-Bass Publishers

Simatupang, T.M., R. Sridharan (2005), An integrative framework for supply
chain collaboration, *The International Journal of Logistics Management,* 16(2), pp. 257-274

Sin, L.Y.M., A.C.B. Tse, O.H.M Yau, R.P.M Chow, J.S.Y. Lee and L.B.Y Lau (2005),
Relationship marketing orientation: scale development and cross-cultural validation, *Journal of Business Research,* 58(2), pp. 185-194

Sink, H.L. and C.J. Langley Jr (1997), A managerial framework for the acquisition of 3PL
services, *Journal of Business Logistics*, 18(2), pp. 163-189

Skjøtt-Larssen, T., C. Thernøe and C. Andresen (2003), Supply chain
collaboration, *International Journal of Physical Distribution & Logistics Management*, 33(6), pp. 531-549

Smith, B.J. and D.W. Barclay (1997), The effects of organizational differences and trust on
the effectiveness of selling partner relationships, *Journal of Marketing,* Vol. 61, pp. 3-21

Sohail, M.S., N.K. Austin and M. Rushdi (2004), The use of third-party logistics services:

evidence from a Sub-Sahara African nation, *International Journal of Logistics: Research & Applications,* 7(1), pp. 45-57

Stank, T.P. and R.G. House (2001), Insights from a logistics partnership, *Supply Chain Management: An International Journal,* 6(1), pp. 16-20

Stefansson, G. (2005), Collaborative logistics management and the role of third-party service providers, *International Journal of Physical Distribution & Logistics Management*, 36(2), pp. 76-92

Stoel, L. (2002), Retail cooperatives: group size, group identification, communication frequency and relationship effectiveness, *International Journal of Retail & Distribution Management,* 30(1), pp. 51-60

Ven, A. van de (1976), On the nature, formation, and maintenance of relations among organizations, *Academy of Management Review,* Vol. 4, pp. 24-36

Vereecke, A. and S. Muylle (2006), Performance improvement through supply chain collaboration in Europe, *International Journal of Operations & Production Management,* 26(11), pp. 1176-1198

Verschuren, P. and H. Doorewaard (1999), Designing a research project, The Hague, Uitgeverij Lemma

Vocht, A, de (2002), *Basishandboek SPSS 11*, Utrecht, Bijleveld Press

Webb, L. and J. Laborde (2005), Crafting a successful outsourcing vendor/client relationship, *Business Process Management Journal,* 11(5), pp. 437-443

Wilding, R. and R. Juriado (2004), Customer perceptions on logistics outsourcing in the European consumer goods industry, *International Journal of Physical Distribution & Logistics Management,* 34(8), pp. 628-644

Yin, R.K. (1994), *Case study research; design and methods,* Thousand Oaks, Sage